

ABSTRACT OF THE DISCLOSURE

A method and system of compensating wave reflections in transmission lines is provided.

The system includes a compensator that transforms a transmission line (which connects an actuator and a motor) into a delay transfer to remove wave reflections, by exploiting a scattering variables representation of the transmission line. The compensator can be a filter with delays that transforms the transmission line into a delay transfer through appropriate linear combinations of delayed or un-delayed voltages and currents. The filter may admit a discrete-time finite-dimensional realization that preserves the wave reflection removal properties for signals. A back-to-back rectifier-inverter or hybrid filter implementation may realize the filter.